



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TF252TH — N-channel Silicon Junction FET Electret Condenser Microphone Applications

Features

- High gain : $G_V=1.0\text{dB typ}$ ($V_{CC}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_{in}=5\text{pF}$, $V_{IN}=10\text{mV}$, $f=1\text{kHz}$)
- Ultrasmall package facilitates miniaturization in end products
- Best suited for use in electret condenser microphone for audio equipments and telephones
- Excellent voltage characteristics
- Excellent transient characteristics
- Adoption of FBET process
- Halogen free compliance

Specifications

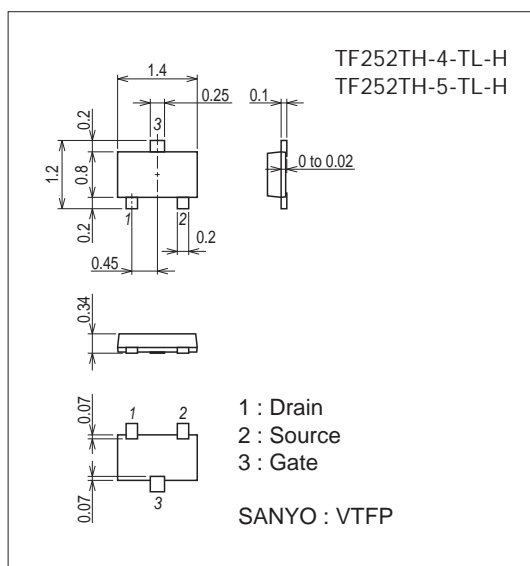
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Gate-to-Drain Voltage	V_{GDO}		-20	V
Gate Current	I_G		10	mA
Drain Current	I_D		1	mA
Allowable Power Dissipation	P_D		100	mW
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

unit : mm (typ)

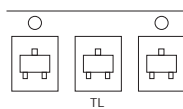
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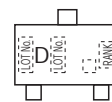
Product & Package Information

- Package : VTFP
- JEITA, JEDEC : SC-106A
- Minimum Packing Quantity : 8,000 pcs./reel

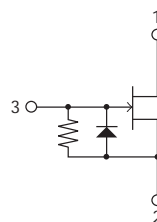
Packing Type: TL



Marking



Electrical Connection



TF252TH

Electrical Characteristics at Ta=25°C

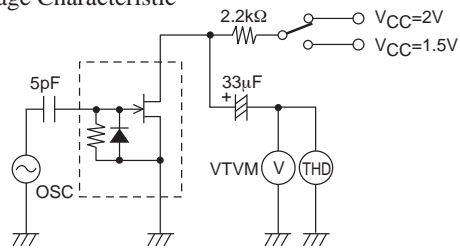
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G = -100\mu A$	-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 2V, I_D = 1\mu A$	-0.1	-0.4	-1.0	V
Drain Current	I_{DSS}	$V_{DS} = 2V, V_{GS} = 0V$	140*		350*	μA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 2V, V_{GS} = 0V, f = 1kHz$	0.8	1.4		mS
Input Capacitance	C_{iss}	$V_{DS} = 2V, V_{GS} = 0V, f = 1MHz$		3.1		pF
Reverse Transfer Capacitance	C_{rss}			0.95		pF
[Ta=25°C, VCC=2.0V, RL=2.2kΩ, Cin=5pF, See specified Test Circuit.]						
Voltage Gain	Gv	$V_{IN} = 10mV, f = 1kHz$		1.0		dB
Reduced Voltage Characteristic	ΔG_{VV}	$V_{IN} = 10mV, f = 1kHz, V_{CC} = 2.0V \rightarrow 1.5V$		-0.6	-2.0	dB
Frequency Characteristic	ΔG_{vf}	$f = 1kHz \text{ to } 110Hz$			-1.0	dB
Total Harmonic Distortion	THD	$V_{IN} = 30mV, f = 1kHz$		0.65		%
Output Noise Voltage	V_{NO}	$V_{IN} = 0V, A \text{ curve}$		-106	-102	dB

* : The TF252TH is classified by I_{DSS} as follows : (unit : μA)

Rank	4	5
I_{DSS}	140 to 240	210 to 350

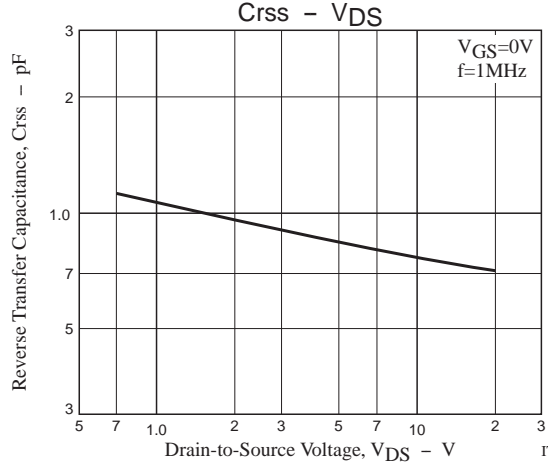
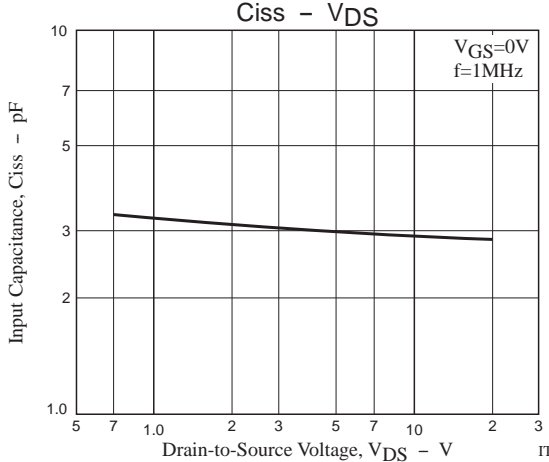
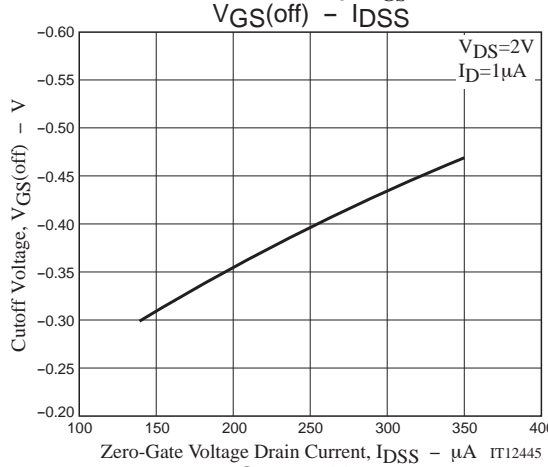
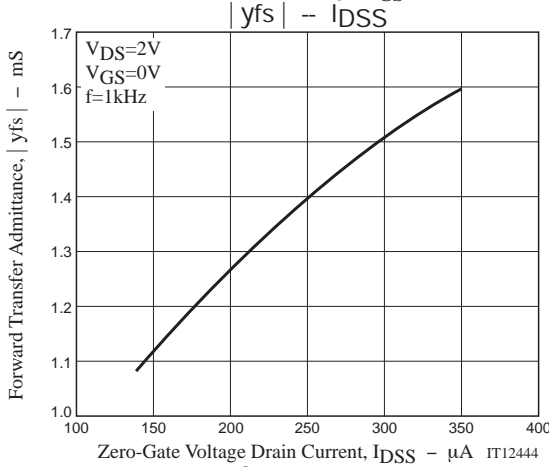
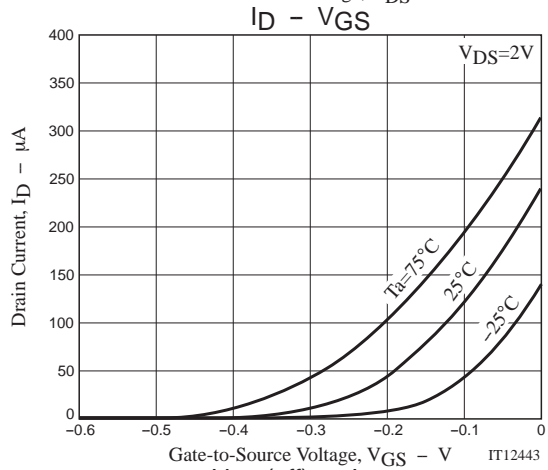
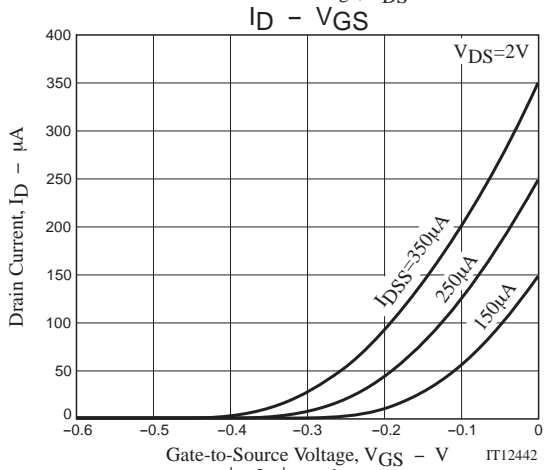
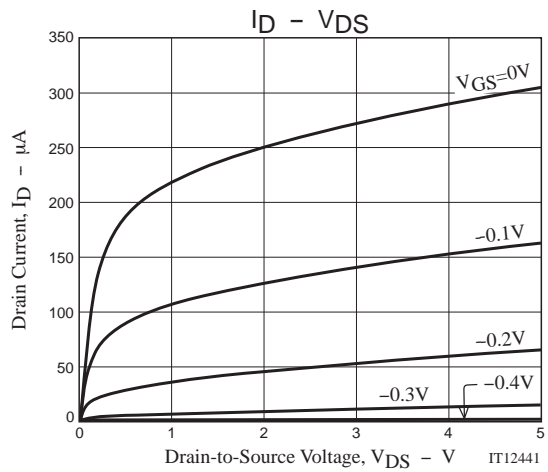
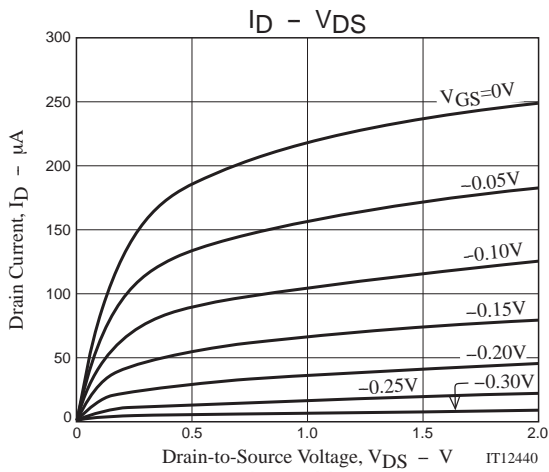
Test Circuit

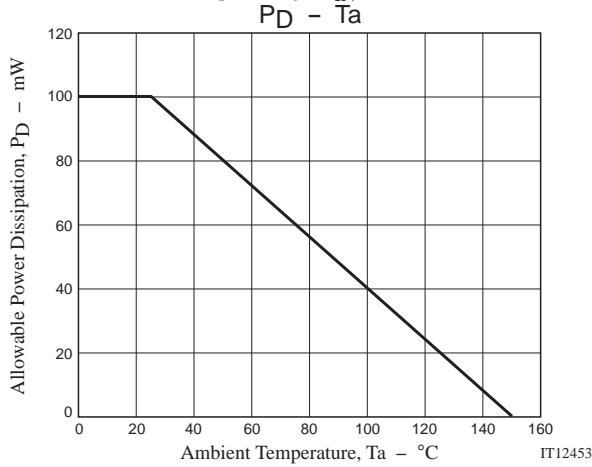
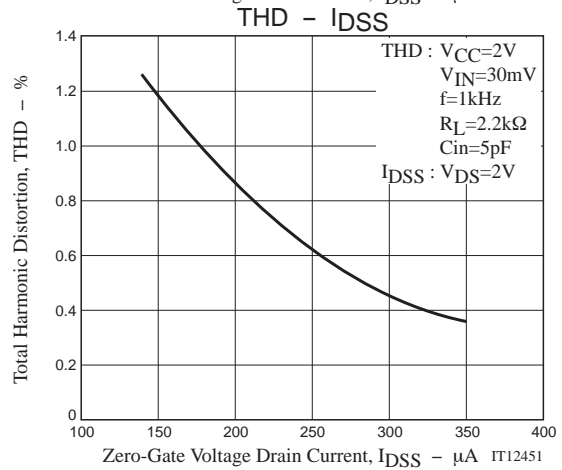
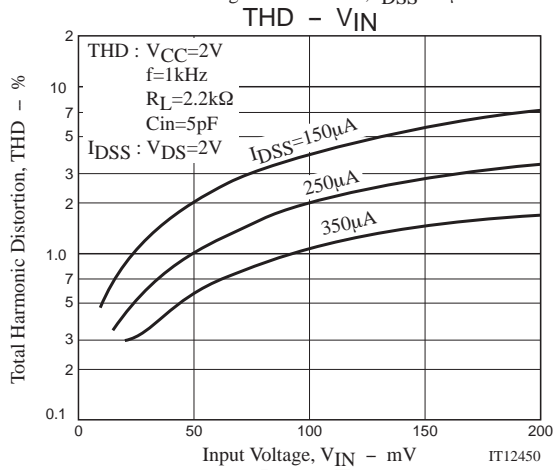
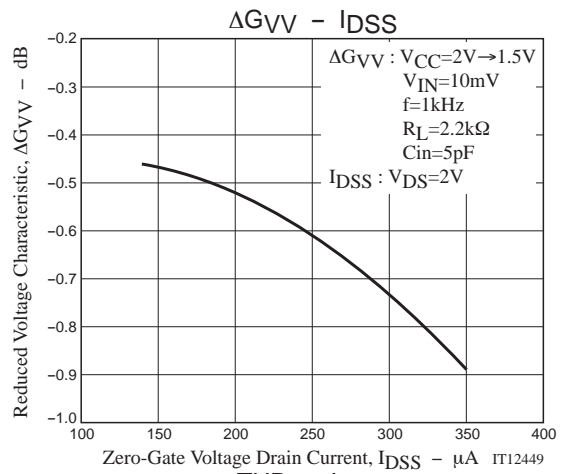
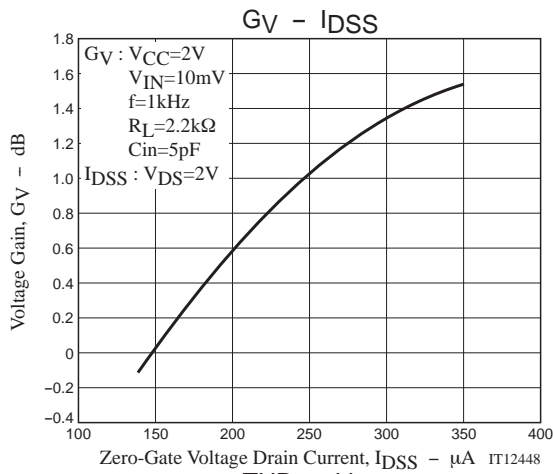
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



Ordering Information

Device	Package	Shipping	memo
TF252TH-4-TL-H	VTFP	8,000pcs./reel	Pb Free and Halogen Free
TF252TH-5-TL-H	VTFP	8,000pcs./reel	





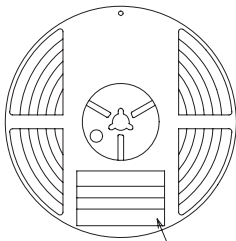
Taping Specification

TF252TH-4-TL-H, TF252TH-5-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
VTFP	VSFP	8,000	40,000	240,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

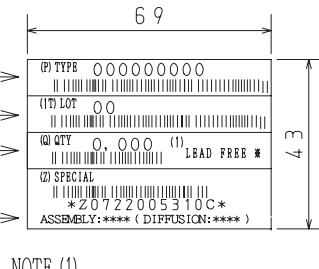
Packing method



Reel label

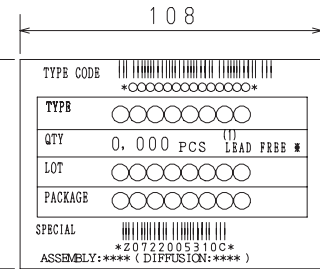
Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label (unit : mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



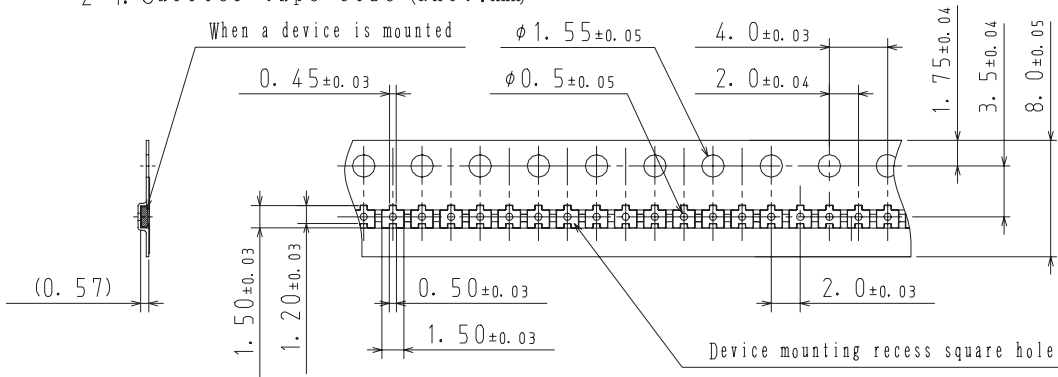
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

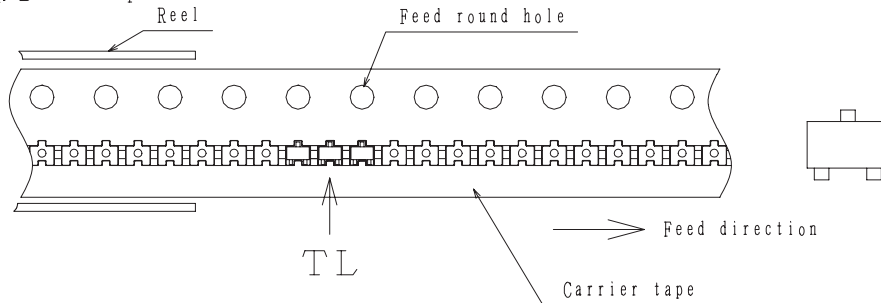
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

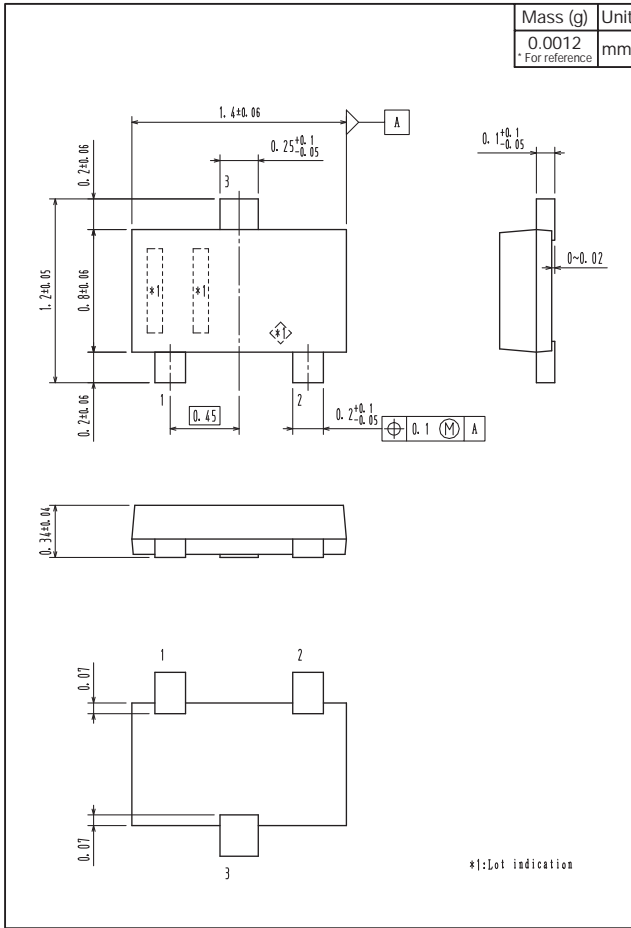


Those with oen electrode terminal on the feed hole side.....TL

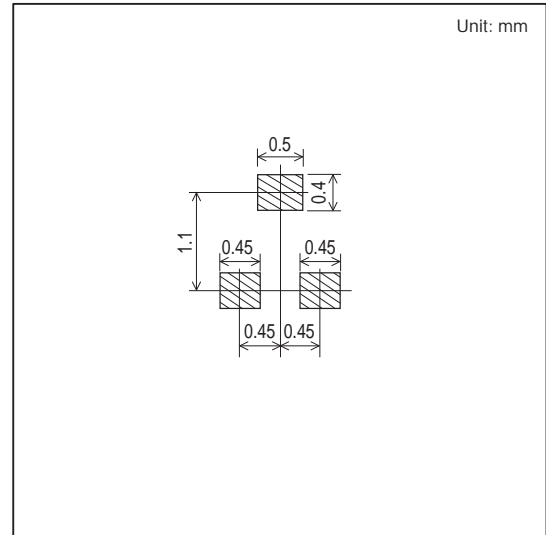
TF252TH

Outline Drawing

TF252TH-4-TL-H, TF252TH-5-TL-H



Land Pattern Example



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